UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,627	07/16/2001	Ullas Gargi	10006286-1	2970

7590   06/04/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER
WANG, JIN CHENG

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/904,627	GARGI ET AL.
	Examiner	Art Unit	
	Jin-Cheng Wang	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*28 April 2004*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Request for Reconsideration

This Office Action is in response to applicant's request for reconsideration filed on 4/28/2004.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-7, 11-12, 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirata et al. U.S. Patent No. 6,240,423 (hereinafter Hirata).

3.   Claim 1:

Hirata teaches a method of visualizing and retrieving a data file comprising:

Displaying a plurality of images representing corresponding data files on a display device using a first distance metric (Calculating <u>a first similarity</u> between a query image and images in the database using a region-based matching to produce a first set of similar images. Images being retrieved in order based upon the distance between the query image and the result candidate images, column 6) *between each data file* (e.g., Based on the mutual similarities between the images, retrieval results of the candidate images are sorted. The images which are similar to each

other are assumed to be under one group and are re-ordered based on the similarity and users can

specify the forms of the output for display; figures 1-11; column 6-9);

Redisplaying a portion of the images on the display device using a refined distance metric

(e.g., Hirata teaches using a distance metric such as a second similarity to retrieve images based

on the set of similar images retrieved using a first similarity. The second similarity is now a

"refined" distance metric because it refines the search for images. The second similarity of

Hirata thus meets the claim limitation of "a refined distance metric." Here, a refined set of

similar images is produced from the first set of similar images produced using a first distance

metric. figure 9, 11 and 12; column 6-9); and

Performing at least one of retrieving, marking, and selecting at least one desired data file

(Hirata teaches retrieving and selecting at least one desired data file; see figures 1-11; column 6-

9).

Claim 2:

The claim 2 encompasses the same scope of invention as that of claim 1 except additional

claimed limitation of repeating the redisplaying step until a desired data file is identifiable.

However, Hirata further discloses the claimed limitation of repeating the redisplaying step until a

desired data file is identifiable (e.g., column 4 wherein Hirata teaches specifying a hierarchical

structure using the authoring tools in which a user may repeat the step of specifying regions of

the query image until a desired data file is identifiable).

Claim 3:

The claim 3 encompasses the same scope of invention as that of claim 1 except additional claimed limitation of computing a feature vector for each data file and calculating the first distance metric between each data file using a first subset of data contained in the feature vector. However, Hirata further discloses the claimed limitation of computing a feature vector for each data file (e.g., similarity is determined based on a number of features derived from the respective images; column 1) and calculating the first distance metric between each data file using a first subset of data contained in the feature vector (e.g., column 6-9).

Claim 4:

The claim 4 encompasses the same scope of invention as that of claim 3 except additional claimed limitation of calculating a second distance metric between each data file using a second subset of data contained in the feature vector which is greater than the first subset. However, Hirata further discloses the claimed limitation of calculating a second distance metric between each data file using a second subset of data contained in the feature vector which is greater than the first subset (e.g., column 6-9).

Claim 5:

The claim 5 encompasses the same scope of invention as that of claim 4 except additional claimed limitation of computing the feature vector for each data file before starting the method; storing the feature vector for each data file; and accessing the feature vector for each data file. However, Hirata further discloses the claimed limitation of computing the feature vector for each data file before starting the method; storing the feature vector for each data file; and accessing the feature vector for each data file (e.g., grouping the second set of similar images into clusters based upon a similarity calculation among members of the second set of similar images and re-

ordering the second set of similar images based upon a similarity calculation among members of

the second set of similar images wherein feature vector calculation is involved for each data file

and the results are stored in the database; see column 9).

Claim 6:

The claim 6 encompasses the same scope of invention as that of claim 4 except additional

claimed limitation of each feature vector having a length at least eight.

However, Hirata further discloses the claimed limitation of each feature vector having a length at

least eight (e.g., considering the multiple features with respect to the image regions).

Claim 7:

The claim 7 encompasses the same scope of invention as that of claim 4 except additional

claimed limitation of the feature vector including at least one of a color feature and a texture

feature. However, Hirata further discloses the claimed limitation of the feature vector including

at least one of a color feature and a texture feature (e.g., figures 1-11; column 2).

Claim 11:

The claim 11 encompasses the same scope of invention as that of claim 1 except

additional claimed limitation of the data files being image files. However, Hirata further

discloses the claimed limitation of the data files being image files (e.g., figures 1-11; column 5).

Claim 12:

The claim 12 encompasses the same scope of invention as that of claim 1 except

additional claimed limitation of the data files being video files. However, Hirata further discloses

the claimed limitation of the data files being video files (e.g., figures 1-11; column 5).

Claim 16:

The claim 16 encompasses the same scope of invention as that of claim 1 except

additional claimed limitation of the portion of the images redisplayed being graphically selected

by the user. However, Hirata further discloses the claimed limitation of the portion of the images

redisplayed being graphically selected by the user (e.g., figures 1-11; column 4).

4.   Claim 17:

Hirata teaches a method of interactively retrieving a data file from a set of data files in

real time comprising:

Displaying a plurality of images, each image corresponding to a data file, on a display

device using a first distance metric between each data file (e.g., Based on the mutual similarities

between the images, retrieval results of the candidate images are sorted. The images similar to

each other are assumed to be within one group and are re-ordered based on the similarity and

users can specify the forms of the output for display. Clustering image data files is done using a

distance metric such as a first similarity; figures 1-11; column 6-9);

Interactively selecting, by a user, a portion of the images (e.g., a user specify the regions

of the images; e.g., the region division of figure 3; figures 1-11; column 6-9);

Redisplaying the portion of the images in real time on the display device using a refined

distance metric (e.g., Hirata teaches using a distance metric such as a second similarity to

retrieve images based on the set of similar images retrieved using a first similarity. The second

similarity is now a "refined" distance metric because it refines the search for images. The second

similarity of Hirata thus meets the claim limitation of "a refined distance metric." Here, a refined

set of similar images is produced from the first set of similar images produced using a first distance metric. Re-order is based on the similarity among the candidate images of figure 9 or 2nd stage image matching is based on boundary of figure 11 and grouping and re-ordering is based on the similarity among candidates using the refined distance metric of figure 11; figures 1-11; column 4); and

Retrieving a desired data file (retrieved data file is displayed on a display device; figures 1-11; column 4).

Claim 18:

The claim 18 encompasses the same scope of invention as that of claim 17 except additional claimed limitation of computing a feature vector for each data file and calculating the first distance metric between each data file using a first subset of data contained in the feature vector. However, Hirata further discloses the claimed limitation of computing a feature vector (visual attributes values, including color, shape and texture-related values; see column 2) for each data file and calculating the first distance metric between each data file using a first subset of data contained in the feature vector (a subset of data refers to the image region and Hirata teaches extracting the feature vector corresponding to each image region in the feature-based image processing; figures 1-11; column 6-9).

Claim 19:

The claim 19 encompasses the same scope of invention as that of claim 18 except additional claimed limitation of calculating a second distance metric between each data file using a second subset of data contained in the feature vector which is greater than the first subset.

However, Hirata further discloses the claimed limitation of calculating a second distance metric

between each data file using a second subset of data contained in the feature vector which is

greater than the first subset (e.g., re-ordering the output images using a second distance metric;

figures 1-11; column 6-9).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 8, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hirata et al. U.S. Patent No. 6,240,423 (hereinafter Hirata), as applied to claims 1 and 17 above,

and further in view of Moghaddam et al. U.S. Patent No. 6,584,221 (hereinafter Moghaddam).

7.   Claim 8:

(1) The claim 8 encompasses the same scope of invention as that of claim 4 except

additional claimed limitation of the feature vector including at least one of a color histogram,

color moment, color coherence histogram, Multiresolution Simultaneous Augoregressive

(MRSAR) Model, coarseness, and directionality.

(2) Hirata is silent on the claimed limitation of the feature vector including at least one of

a color histogram, color moment, color coherence histogram, Multiresolution Simultaneous

Augoregressive (MRSAR) Model, coarseness, and directionality.

(3) Moghaddam discloses the claimed limitation of the feature vector including at least one of a color histogram, color moment, color coherence histogram, Multiresolution Simultaneous Augoregressive (MRSAR) Model, coarseness, and directionality (e.g., Moghaddam column 3, lines 2-10; column 3, lines 64-67; column 4, lines 1-8).

(4) It would have been obvious to one of ordinary skill in the art to have incorporated the Moghaddam's feature vectors into Hirata's method of visualizing and retrieving an image from the database because Hirata suggests visual and semantic features including color, shape and texture-related values (Hirata column 2).

(5) One having the ordinary skill in the art would have been motivated to do this because it would have advantageously provided the various image features for accurate image extraction and matching.

Claims 13-14:

(1) The claim 13 encompasses the same scope of invention as that of claim 1 except additional claimed limitation of establishing a fixed scale that spans a maximum distance between the plurality of data files; and indicating a relative position on the fixed scale for the redisplay of the portion of the image, thereby providing the user with a reference frame.

The claim 14 encompasses the same scope of invention as that of claim 1 except additional claimed limitation of the fixed scale being at least one of a linear scale, a logarithmic scale, and a hyperbolic scale.

(2) Hirata is silent on the linear scale.

(3) Moghaddam discloses the linear scale (e.g., Moghaddam column 4).

(4) It would have been obvious to one of ordinary skill in the art to have incorporated the

Moghaddam's linear scale into Hirata's method of visualizing and retrieving an image from the

database because Hirata suggests specifying image regions (Hirata column 2).

(5) One having the ordinary skill in the art would have been motivated to do this because

it would have advantageously selected image regions at different resolutions.

8.   Claim 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hirata et al. U.S. Patent No. 6,240,423 (hereinafter Hirata), as applied to claims 1 and 17 above,

and further in view of Jain U.S. Patent No. 6,121,969 (hereinafter Jain).

9.   Claims 9, 10, and 20:

(1) Hirata teaches a method of visualizing and retrieving a data file from a set of data

files.

(2) Hirata is silent on the claimed limitation that the first distance metrics are mapped

into an N-dimensional space using FastMap for displaying and the refined distance metrics are

mapped into an N-dimensional space using FastMap for redisplaying.

(3) Jain discloses the claimed limitation that the first distance metrics are mapped into an

N-dimensional space using FastMap for displaying and the refined distance metrics are mapped

into an N-dimensional space using FastMap for redisplaying (e.g., Jain column 27, lines 30-40;

column 25, lines 35-67; column 26, lines 1-57).

(4) It would have been obvious to one of ordinary skill in the art to have incorporated the

Jain's mapping method into Hirata's method of visualizing and retrieving an image from the

database because Hirata suggests distance metric for image features with respect to image regions (Hirata column 4-5).

(5) One having the ordinary skill in the art would have been motivated to do this because it would have advantageously provided the display of metric properties for representation in the display space (Jain column 25, lines 35-67; column 26, lines 1-57).

10.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata et al. U.S. Patent No. 6,240,423 (hereinafter Hirata) as applied to claims 1 and 17 above, and further in view of Bates et al. U.S. Patent No. 5,528,259 (hereinafter Bates).

11.   Claim 15:

(1) Hirata teaches a method of visualizing and retrieving a data file from a set of data files.

(2) Hirata is silent on the claimed limitation of providing a display depth indication that represents an amount of overlapping of images on the display and scrolling to view images that were previously not viewable due to overlapping of the images.

(3) Bates discloses the claimed limitation of providing a display depth indication that represents an amount of overlapping of images on the display and scrolling to view images that were previously not viewable due to overlapping of the images (e.g., Bates figures 4A-4C; column 4, lines 39-56; column 5, lines 25-45).

(4) It would have been obvious to one of ordinary skill in the art to have incorporated the Bates' scrolling of overlapping images and selecting of an alternate layer into Hirata's method of visualizing and retrieving an image from the database because Hirata suggests a user interface

selection of a portion of image and second level regions and objects (Hirata figures 1-11; column 4).

(5) One having the ordinary skill in the art would have been motivated to do this because it would have advantageously provided a pictorial representation of one of selected multiple layers of image data in a multi-dimensional scrolling method of manipulating or selecting image layers (e.g., Bates figures 4A-4C; column 4, lines 39-56; column 5, lines 25-45).

Remarks

12.   Applicant's arguments, filed 04/28/2004, paper number 7, have been fully considered but they are not deemed to be persuasive.

13.   Applicant argues in essence with respect to the claim 1 and similar claims that:

(A) "In contrast to the method disclosed and recited in Applicants' independent claims 1 and 17, the Hirata patent fails to teach or suggest using a refined distance metric which is applied to a user selected subset of displayed images."

In response to the arguments in (A), the Examiner asserts that Hirata teaches a refined metric which is applied to a user selected subset of displayed images. For example, in column 5-6, it is stated, "the calculation based on boundary line matching is applied to the search results of an initial search based upon region attributes...and outputting retrieved results." Hirata teaches using a distance metric such as a second similarity to retrieve images based on the set of similar images retrieved using a first similarity. The second similarity is now a "refined" distance metric because it refines the search for images. The second similarity of Hirata thus meets the claim limitation of "a refined distance metric." Here, a refined set of similar images is produced from

the first set of similar images produced using a first distance metric. See figure 9, 11 and 12;

column 6-9.

14.   Applicant argues in essence with respect to the claim 1 and similar claims that:

(B) "In addition, the Hirata patent fails to teach or suggest the claim 17 feature of

interactive user selection for selecting a subset of images to be displayed. Rather, the

query based system of the Hirata patent groups all images, and only creates new

groupings based on a new query. The Hirata patent does not teach or suggest applying a

second stage of image matching to a user selected subset of returned images."

In response to the arguments in (B), the Examiner asserts that Hirata teaches applying a

refined metric to a user-selected subset of displayed images. For example, in column 5-6, it is

stated, "the calculation based on boundary line matching is applied to the search results of an

initial search based upon region attributes...and outputting retrieved results." Hirata teaches using

a distance metric such as a second similarity (e.g., boundary similarity) to retrieve images based

on the set of similar images retrieved using a first similarity such as color similarity and/or shape

similarity of a region. The second similarity is now a "refined" distance metric because it refines

the search among the similar images. The second similarity of Hirata thus meets the claim

limitation of "a refined distance metric." Here, a refined set of similar images is produced from

the first set of similar images produced using a first distance metric. See figure 9, 11 and 12;

column 6-9.

15.   Applicant argues in essence with respect to the claim 1 and similar claims that:

(C) "Hirata does not teach or suggest that a refined distance metric, as presently claimed,

is used to redisplay the images of any defined region...As such, the Hirata patent fails to

teach or suggest the user interactive selection feature of Applicant's claim 17."

In response to the arguments in (C), the claim limitation calls for "redisplaying a portion

of the images using a refined distance metric." Applicant's argument that "a refined distance

metric...is used to redisplay the images of any defined region" is not exactly found in the claim.

The Examiner asserts that Hirata teaches the claim limitation. For example, in column 5-6, it is

stated, "the calculation based on boundary line matching is applied to the search results of an

initial search based upon region attributes...and outputting retrieved results." Hirata teaches

applying a refined metric to a user-selected subset of displayed images that has been retrieved

using the region based matching. Hirata teaches using a distance metric such as a second

similarity (e.g., boundary similarity) to retrieve images based on the set of similar images

retrieved using a first similarity such as color similarity and/or shape similarity of a region. The

second similarity is now a "refined" distance metric because it refines the search among the

similar images. The second similarity of Hirata thus meets the claim limitation of "a refined

distance metric." Here, a refined set of similar images is produced from the first set of similar

images produced using a first distance metric and therefore is less than the first set of similar

images. See figure 9, 11 and 12; column 6-9. As regards to the user interactive selection feature

of the claim 17, Hirata teaches that a user can specify the regions of the images; e.g., the region

division of figure 3; figures 1-11; column 6-9.

16.   Applicant argues in essence with respect to the claim 1 and similar claims that:

(D) "Hirata does not teach or suggest redisplaying a portion of the initial images using a refined distance metric."

In response to the arguments in (D), the claim limitation calls for "redisplaying a portion of the images using a refined distance metric. The Examiner asserts that Hirata teaches the claim limitation. For example, in column 5-6, it is stated, "the calculation based on boundary line matching is applied to the search results of an initial search based upon region attributes...and outputting retrieved results." Hirata teaches applying a refined metric to a user-selected subset of displayed images that has been retrieved using the region based matching. Hirata teaches using a distance metric such as a second similarity (e.g., boundary similarity) to retrieve images based on the set of similar images retrieved using a first similarity such as color similarity and/or shape similarity of a region. The second similarity is now a "refined" distance metric because it refines the search among the similar images. The second similarity of Hirata thus meets the claim limitation of "a refined distance metric." Here, a refined set of similar images is produced from the first set of similar images produced using a first distance metric and therefore is less than the first set of similar images. See figure 9, 11 and 12; column 6-9.

Conclusion

17.　　**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after
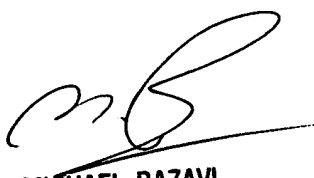
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

18.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jin-Cheng Wang whose telephone number is (703) 605-1213.

The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 308-6606 for regular

communications and (703) 308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 395-3900.

jcw
May 26, 2004

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600